

Claims

1.- Sliding doors with cam guide (6) for coplanar closing, particularly for pieces of furniture (M) or similars, characterized by being supported by a clamp (2) that links each shutter (1a, 1b) of the sliding door to a pair of first carriages (3a, 3b) being translatable longitudinally with respect to respective second carriages (4a, 4b), which in turn are translatable longitudinally along the whole bay of an opening (V) to be closed and opened, said second carriages (4a, 4b) being supported and guided by a rail (59) realized by a profile (5) placed along the length of the opening (V), and the first carriages (3a, 3b) being simultaneously engaged with rollers (35) to move along a track of a respective cam (61, 62) being longitudinally coaxial to the rail (59) of the sliding doors.

2.- Sliding doors with cam guide (6) for coplanar closing, according to claim 1, characterized by the fact that as an effect of the possibility of longitudinal translation of the first carriages (3a, 3b) along tracks (41) of their respective longitudinal second carriages (4a, 4b), each shutter (1) is translatable transversally with respect to the axis of the rail (59), which is orientated longitudinally to the opening (V) to be closed and opened.

3.- Sliding doors with cam guide (6) for coplanar closing, according to claims 1 or 2, characterized by the fact that each shutter (1) is linked to the pair of first carriages (3a, 3b) by means of one or more clamps (2), which bring the shutter (1) for accomplishing the movement resulting from the longitudinal translation of the second carriages (4a, 4b) along the rail

(59) matched with the transversal movement of the first carriages (3a, 3b) as an effect of their respective engagement with the cams (61, 62).

4.- Sliding doors with cam guide (6) for coplanar closing, according to claim 3, characterized by one of said first carriages (3a, 3b) being provided with rollers (31) or another sliding system, for being translatable along the tracks (41) of one of said second carriages (4a, 4b) which is provided with a pulley (43) for sliding along the rail (59) for the support and the translation of the shutters (1).

5.- Sliding doors with cam guide (6) for coplanar closing, according to claim 4, characterized by one of said first carriages (3a, 3b) being placed laterally to each shutter (1), so that its guide roller (35) can be housed and can slide to bended ends (62a, 62b) of a long groove (62) of the guide cam (6).

6.- Sliding doors with cam guide (6) for coplanar closing, according to claim 4, characterized by one of said first carriages (3b, 3a) being placed on the centre line of a longitudinal side of the shutter (1), so that its guide roller (35) can be housed and can slide to bended ends (61a, 61b) of a short groove (61) of the guide cam (6).

7.- Sliding doors with cam guide (6) for coplanar closing, according to claims 1, 5 and 6, characterized by one of said first carriages (3a, 3b) being placed respectively on an outer edge and the other one on the centre line of an upper side of

the shutter (1), said first carriages (3a, 3b) being steadily linked to the shutter (1) by means of one or more clamps (2).

8.- Sliding doors with cam guide (6) for coplanar closing, according to claims 1, 5 and 6, characterized by one of said first carriages (3a, 3b) being placed on the outer edge and the other one on the centre line of a lower side of the shutter (1), by means of one or more clamps (2).

9.- Sliding doors with cam guide (6) for coplanar closing, according to claims 3 and 4, characterized by the fact that the second carriages (4a, 4b), besides being provided with a pulley (43), are also provided with sliding wheel (45) that slides on a track (53) of the supporting profile (5), the profile (5) being also provided with a shoulder (54) that acts together with the support and guide of the shutter (1) during the translation along the rail (59).

10.- Sliding doors with cam guide (6) for coplanar closing, according to claims 4 and 9, characterized by the fact that the pulleys (43), in particular one of the second carriages (4b), have a flaring wide enough to rotate on the rail (59) even when they are lightly tilted with respect to the axis of the same rail (59).

11.- Sliding doors with cam guide (6) for coplanar closing, according to claim 4, characterized by the fact that one of the second carriages (4a) is provided with a stop wheel (46) acting as a shoulder on the track (58) of the supporting profile (5), to assure the linearity of the translation of the shutter (1), also in case of pushes or uneven thrusts.

12.- Sliding doors with cam guide (6) for coplanar closing, according to claims 1 and 2, characterized by combining a device for the leading and control of the wide opening of the shutter (1) to be opened or to be closed for the respective overlapping and coplanarity, with a guide device placed on the opposite of a longitudinal side, said opposite guide device being fundamentally provided for a better distribution of the stress in phase of inclination or partial hinging of the moving shutter (1) as an effect of the different position of the first carriages (3a, 3b) during their translation into the respective bended portions (61a, 61b; 62a, 62b) of the guide cam (6).

13. Sliding doors with cam guide (6) for coplanar closing, according to claim 12, characterized by an elbow-shaped transmission shaft (73) being linked to a section (57) of the profile (5) for the support of the second carriages (4a, 4b), preferably by interposition of a roller (75) that slides on the sides of an opening (57) of the section (57), said elbow-shaped shaft (73) being steadily fixed to the shutter (1) by means of supports (76), and an opposite extremity (72) of the shaft (73) being adjusted to slide inside an opening (71) of a guide (70) which is placed on a side opposite where the carriages and little carriage system are located.

14.- Sliding doors with cam guide (6) for coplanar closing, according to claims 12 and 13, characterized by an elbow-shaped transmission shaft (73) having its upper extremity (74) engaged in the opening (57) of the supporting profile (5), the upper pulley (43) and the roller (45) of the first carriage (3a, 3b) being linked to a ceiling (S) of the opening (V), the

opposite extremity (72) of the shaft (43) being engaged in a linear guide (70) placed on bottom (F) of the opening (V).

15.- Sliding doors with cam guide (6) for coplanar closing, according to claims 12 and 13, characterized in that the linear guide (70) being linked to the bottom (F) is formed by a guide cam being identical and parallel to the guide cam (61, 62) of the ceiling (S), requiring in this case only a lower pivot for the sliding of the shutter (1) without having to apply to the elbow-shaped shaft (73).

16.- Sliding doors with cam guide (6) for coplanar closing, according to claims 8, 12 and 13 characterized by the fact that a guide cam is provided with the ceiling (S) of the opening (V) that implies the shutter (1) to be guided and controlled by the first carriages (3a, 3b) with the second carriages (4a, 4b) being supported by clamps (2) placed on the lower side of the same shutters (1).